May 2010

A Snapshot of Information-Seeking Behavior Literature in Health Sciences: a Bibliometric Approach

Ahmed Bakeri Abubakar
International Islamic University, Malaysia, bakeri@iiu.edu.my

Yahya Ibrahim Harande
Bayero University, yaibrahimah@yahoo.com

Library Philosophy and Practice 2010

ISSN 1522-0222

A Snapshot of Information-Seeking Behavior Literature in Health Sciences: a Bibliometric Approach

Professor Dr. Ahmed Bakeri Abubakar
Department of Library and Information Sciences
Kulliyyah of Information and Communication Technology
International Islamic University, Malaysia

Yahya Ibrahim Harande
Department of Library and Information Sciences, Faculty of Education
Bayero University
Kano, Nigeria

Introduction

Information-seeking behavior is an important LIS concept. It deals with behaviors and actions exhibited by human beings in their search for information to satisfy diverse information needs. Wilson (2008) says that, “Information seeking behavior is the purposive seeking for information as a consequence of a need to satisfy some goal. In the course of seeking the individual may interact with manual information system (such as newspapers or library) or with computer based system (such as the WWW).” It is important to study the information-seeking behavior of particular groups of people, order to serve them better. Bibliometrics is a flexible and growing research methodology that lends itself to many approaches. Author productivity, contextual analysis, citation analysis, data clustering, bibliographic coupling, etc., are some of the multiple approaches of bibliometrics as a research method. Exploring collaboration in research is another fruitful approach. Yazit and Zainab (2007) hold the view that, “collaboration encourages author productivity and enhances the quality of articles.” This study uses a snapshot modality. Wilson (2006) says that, “much information (seeking) behavior research is of a ‘snapshot' character exploring a situation at a particular point in time.”

Information-seeking behavior differs significantly according to background, culture, conditions, needs, and requirements. It is difficult to predict the actual behavior that a person might exhibit in a quest for information. In order to understand the behavior of human beings better, there is a need for multidisciplinary research using multidimensional approaches. Health science is a vast discipline that uses information extensively. Stokes (2008) says that, “Nurses handle information all the time, including processes from patient counseling through recording of care reflection practice, with increasing emphasis on evidence based practice; with the growth of web 2.0, nurses will need to work with fellow professionals and patients in different ways, and nursing students will need to acquire more and more sophisticated information seeking skills to cope with the new roles.” Up-to-date information is very important. Many journal articles, papers, reports, and case studies are written in this area. This paper will explore bibliometrically and create a snapshot of information seeking behavior in the health sciences. The range of the study is the years 2000-2007. In looking at the distribution of the papers and sources of information in this literature, Bradford's law of scattering of information sources is applied to this data.

A lot of bibliometric researches use Bradford's Law to study particular phenomena. Some of these researches include, Brookes (1969), Donohue (1970), Kademani et al (2005) Zabid Ahmad and Anisur Rahman (2008), MacLean, et al., (2007), Lawani (1973), and Afolabi (1991).

Method

National Library of Medicine's MEDLINE was used through the PubMed data base to gather data. Boolean search strategies were employed. The Medical Subject Headings (MeSH) terms “Information seeking behavior ”and “ Health science s” were used for exercise. A total of 801 publications in the 2000-2007 literature of information-seeking behavior in health sciences were found. The publications covered the field of health sciences globally. Four aspects of the data were examined: growth of the literature, authorship patterns, Bradford's distribution, and language of dispersion of the literature. The sampled publications were concentrated in two domains: Nursing and Psychoanalysis .

Results and Discussion

Growth of the literature

Table 1 and figure 1 show the growth and development of the literature on information- seeking behavior in health sciences. The yearly growth could be explored from the table in two perspectives. The growth of the literature was slow at first, but picked up in 2002, and fell back in 2003. Starting in 2004 the growth became exponential. Table 2 shows authorship patterns. About two-thirds of the literature had multiple authors. The highest collaboration co efficient was in 2006. This supports the belief that scientists in pure and allied sciences collaborate in research and publication.

Table 1. Growth and development of the literature

Year	Number of articles	Cumulative number of articles	Percentage
2000	49	49	6.11
2001	49	98	6.11
2002	79	177	9.90
2003	70	247	8.73
2004	102	349	12.73
2005	150	499	18.72
2006	205	704	25.60
2007	97	801	12.10
Total	801		

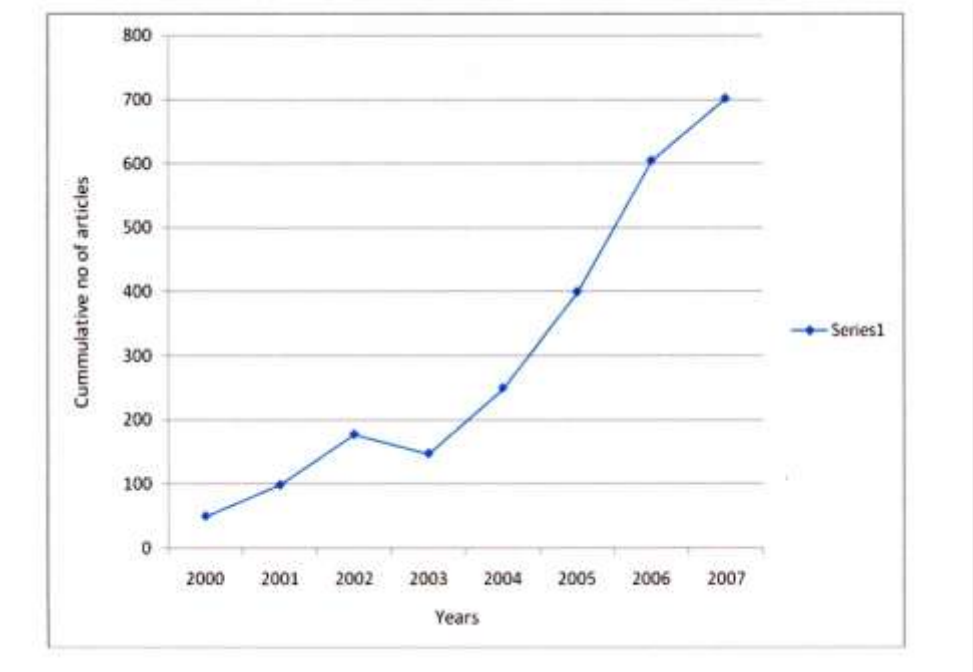

Figure 1

Table 2. Authorship pattern

Year	Single author	Multi-author	Total	Collaboration co-efficient
2000	22	27	49	0.55
2001	21	28	49	0.57
2002	25	54	79	0.68
2003	23	47	70	0.67
2004	33	69	102	0.67
2005	48	102	150	0.68
2006	52	153	205	0.74
2007	41	56	97	0.57
Total	265	536	801	0.66

Domain-wise authorship patterns

Table 3 shows domain-wise distribution. There were 505 publications in the nursing domain within the period of the study, with 296 in psychoanalysis. The trend of authorship in the two domains was towards collaboration. Nearly one-quarter of the papers had two authors, with three authors at 17.72 percent, and four authors at 11.48 percent. Looking closely at the two domains shows a scattered trend of multi-authored papers. There are paper with four, five, and six authors, and some with as many as thirteen or sixteen. This clearly indicates the collaborative nature of research activities in the two domains; however, it should be noted that information-seeking behavior cuts across all subjects in health sciences. Information-seeking behavior is an inter-disciplinary phenomenon that can be studied in many different dimensions, perspectives, techniques, and approaches.

Table 3. Domain-wise authorship pattern

Authorship	Domain			
	Nursing	Psychoanalysis	Total publication	Percentage
One	145	120	265	33.08
Two	136	62	198	24.71
Three	95	51	146	18.22
Four	64	28	92	11.48
Five	26	16	42	5.24
Six	13	6	19	2.37
Seven	8	7	15	1.87
Eight	5	3	8	0.99
Nine	9	1	10	1.24
Ten	1	1	2	0.24
Eleven	1	-	1	0.24
Twelve	-	-	-	-
Thirteen	-	2	2	0.24
Fourteen	-	-	-	-
Fifteen	-	-	-	-
Sixteen	1	-	1	0.12
Total	504	297	801	100.00

Bradford's distribution

The literature of information seeking behavior in health sciences is highly scattered. Table 4 shows 24 journals that published three or more papers on information-seeking behavior. The journals are arranged and ranked according to decreasing order of productivity.

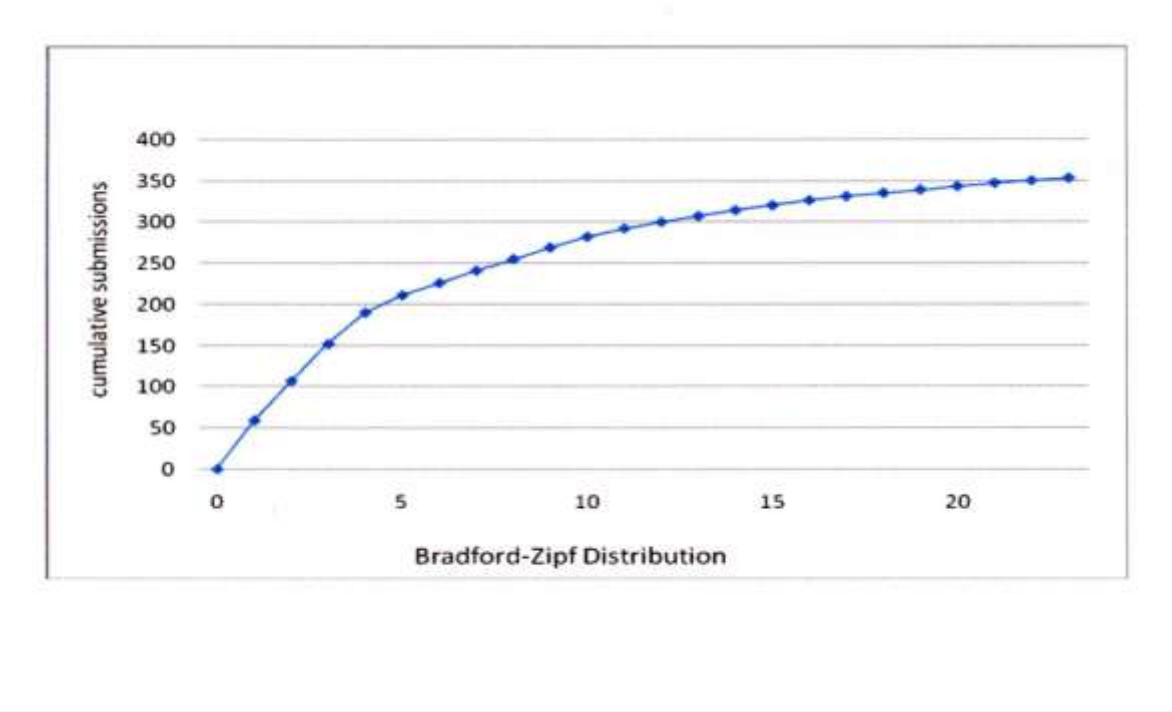

Figure 2

The ranked journals are plotted on the horizontal axis, while the cumulative sums of journals are plotted on the vertical axis. Then in Figure 3, Bradford-Zipf distribution was plotted for the literature of information-seeking behavior in health sciences. Figure 3 does not have an S-shape or the "gross droop" at the tail end of the graph. The graph is almost a straight line, which indicates that the literature is widely scattered and growing very quickly.

Table 4. Ranking of journals contributing three or more papers

Rank	No. of papers	Cumul. Papers	Journal title
1	59	59	Nurse education today
2	48	107	International journal of psychoanalysis
3	45	152	Journal of nurse education
4	38	190	Nurse Education
5	21	211	Journal of clinical nursing
6	15	226	Nursing education perspectives
7	15	241	Journal of professional nursing
8	14	255	International journal of nursing studies
9	14	269	Psychoanalysis quarterly
10	13	282	Journal of American psychoanalysis association
11	10	292	Psychoanalysis study child
12	8	300	Rech seins inform (French)
13	7	307	Journal of continental education nursing
14	7	314	Nursing stand

15	6	320	American journal of psychoanalysis
16	6	326	Encephale (French)
17	5	331	Journal of personality disorder
18	4	335	Nurse Ethics
19	4	339	Psychoanalysis review
20	4	343	Journal of holistic nursing
21	4	347	BMC public health
22	3	350	Journal of psychiatry mental health news
23	3	353	Pediatrics
24	3	356	Pediatric nursing

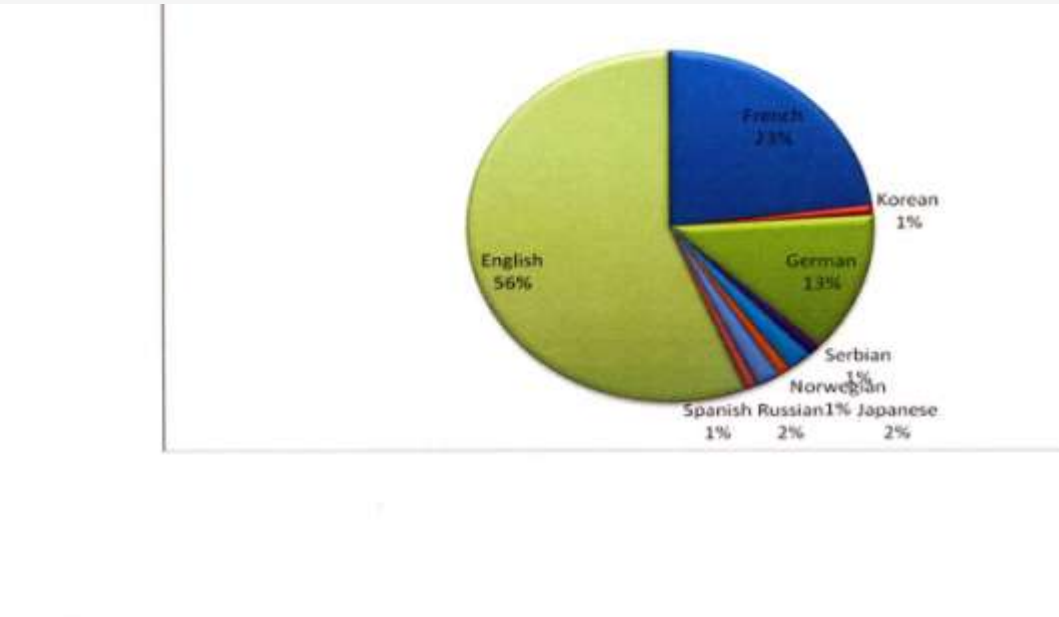

Figure 3

Language of dispersion of the literature.

Languages that are the major vehicles for dissemination of a literature are an indicator of where a relevant and comprehensive literature can be found for research, teaching, and scholarship in a subject area. Table 4 and figure 3 indicate that English accounts for 56 percent of the articles published. French is second with 23 percent. There gap between first and the second could exist because more countries globally use English as one of their major languages than French. Papers in German were third with 13 percent, while Russian, Japanese, Korean, Serbian, Norwegian, and Spanish, scored 2 percent or less. Haiqi (1995) found that English language was the first with 51.41 percent in dispersion of the literature of Acupuncture.

Conclusion

This study is an exploratory snapshot of the contributions in information-seeking behavior in the literature of health sciences from 2000-2007. The findings indicate that the literature recorded exponential growth from 2004 onward. It also found that 66.9 percent were multi-authored, showing the collaborative approach of scientists in the field. This approach opens doors for interaction among experts in different areas of the health sciences, leading to learning and sharing of information resources. Collaborative research enhances the productivity of authors as well as their visibility. Subramanyam (1983) states that collaboration has also been found to affect the visibility and productivity of scientists. Zainab (2007) emphasizes the importance of collaboration for effective information seeking, saying that "Collaboration and professional intermediation therefore becomes necessary to support purposeful bibliographic compilations to support effective information seeking amongst library and information users and researchers."

Bradford's distribution was found to be applicable to this study, even though the graph does not take the Bradford "S" shape. This exploratory study used a snapshot modality spanning an eight-year period. More detailed and in-depth research needs to be done in this fast-growing literature.

References

Afolabi, M. (1991). Journal productivity in the literature on Acquired Immune Deficiency Syndrome. *Nigerian Libraries 25&26:* 1-4.

Brooks, B.C. (1969). Bradford`s law and the bibliography of science. *Nature 224:* 953-956.

Donohue, J.C. (1970). *A method for the analysis of subject literature: A bibliometric study* . Unpublished Doctoral dissertation, Case Western Reserve University.

Haiqi, Z. (1995). Basic literature of acupuncture in Medline: A bibliometric analysis. *Libri 45:* 113-122.

Kademani, B.S., Kumar, V., Surwase, G., Sagar, A., Mohan, L., Gaderao, C.R., Kalyane, V.L., Kalyani, S.V., & Prakasan, E.R. (2005). Scientometric dimensions of innovation: Communication productivity of the Chemistry Division at Bhabha Atomic Research Centre. *Malaysian Journal of Library and Information Science 10:* 165-89.

Stokes, P. (2008). Developing information seeking behavior: Profile for nursing and midwifery students. *Information Research 13:* 4.

Subramanyam, K. (1983) Bibliometric studies of research collaboration: A review. *Journal of Information Science 6:*37.

Lawani, S.M. (1973). Bradford`s law and the literature of agriculture. *International Library Review 5:* 350.

Mclean, R., Mendis, K., Harris, B., & Canalesa, J. (2007). Retrospective bibliometric review of rural health research: Australia's contribution and other trends. *The International Electronic Journal of Rural and Remote Health Research, Education, Practice, and Policy 767* . Available: http://www.rrh.org.au

Wilson, T.D. (2006). A re-examination of information seeking behavior in the context of activity theory. *Information Research 11:* 4.

Wilson, T.D. (2008). Human information behavior. Available: http://inform.nu/Articles/vol.3/v3n2 .

Yazit, N., & Zainab, A.N. (2007). Malaysian publication contributions to the field of Library and Information Science. In Abdullah, A., et al. (Eds) ICOLIS 2007, Kuala Lumpur: LISU, FCSIT: 407-420.

Zabed, A.S.M., & Anisur-Rahman, Md. (2008). Nutrition literature of Bangladesh: A bibliometric study. *Malaysian Journal of Library and Information Science. 13:*1, 35-43.

Zainab, A.N. (2007). Women's studies in Malaysia: A bibliometric study with implications for its bibliographical control. In Abdullah, A., et al. (Eds) ICOLIS 2007, Kuala Lumpur: LISU, FCSIT: 385-396.